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IPC Solution

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# FB1603B/C- PC/104
# LAN Module User's Manual

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FB1603B/C

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If you have problems or difficulties in using the system board, or setting up the relevant devices, and software that are not explained in this manual, please contact our service engineer for service, or send email to support@fabiatech.com.

## Returning Your Board For Service & Technical Support

If your board requires servicing, contact the dealer from whom you purchased the product for service information. You can help assure efficient servicing of your product by following these guidelines:

- A list of your name, address, telephone, facsimile number, or email address where you may be reached during the day
- Description of you peripheral attachments
- Description of you software (operating system, version, application software, etc.) and BIOS configuration
- Description of the symptoms (Extract wording any message)

For updated BIOS, drivers, manuals, or product information, please visit us at www.fabiatech.com

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# Chapter 1 Introducing the FB1603B/C System Board

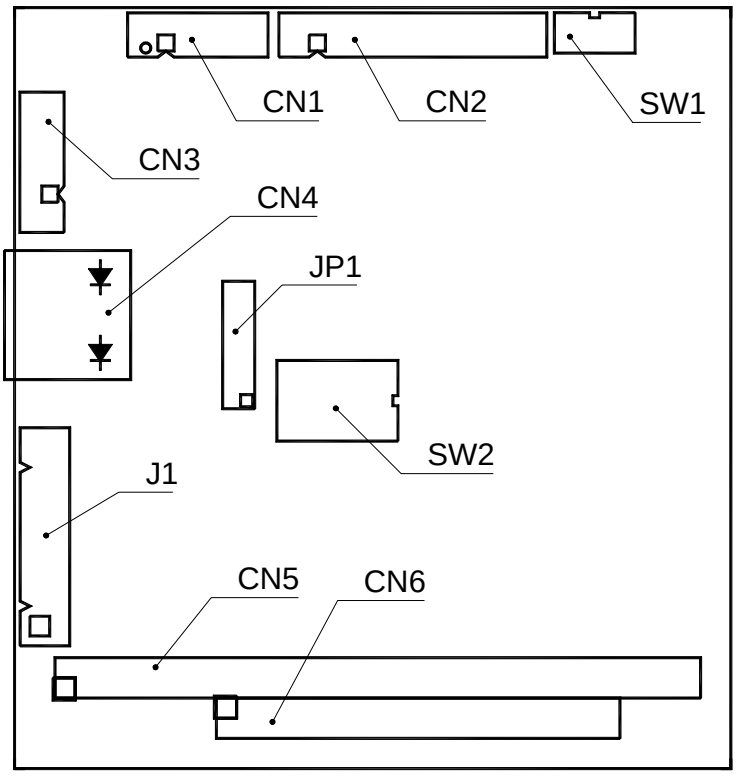
## Overview

The FB1603B is a PC/104 10/100-BaseTX LAN module. The FB1603C is a PC/104 10-BaseT LAN module. This user's manual provides information on the physical features and installation of the FB1603B/C.

## Series Comparison Table

| Model | FB-1603B | FB-1603C |
|---|---|---|
| Chipset | SMsC 91C113 | DM9008 |
| Ethernet 10 Mbps | YES | YES |
| Ethernet 100 Mbps | YES | |
| LAN Boot Rom (Option) | | YES |
| Board Size | 90.2mm x 96mm | 90.2mm x 96mm |

## Layout



# Specifications

- Stack through PC/104 bus.
- 10Base-T, DM9008 chipset with RJ-45 connector. (FB1603C)
- 16 addresses selectable and 8 interrupt level selectable with software configuration. (FB1603C)
- 10/100-BaseTX, SMsC 93C113 chipset with RJ-45 connector. (FB1603B)
- 8 addresses selectable and 8 interrupt level selectable. (FB1603B)
- On-Board PLCC socket for LAN boot-ROM. (FB1603B/C)
- Operating temperature 0 degree C to 60 degree C.
- Up to 95% Humidity non-condensing.
- Power Req.: +5v only 0.4A maximum.
- PC/104 form-factor (90x96mm/3.6”x3.8”).

## Packing List

Upon receiving the package, verify the following things. Should any of the mentioned happens, contact us for immediate service.

- Unpack and inspect the FB1603B/C package for possible damage that may occur during the delivery process.
- Verify the accessories in the package according to the packing list and see if there is anything missing or incorrect package is included.
- If the cable(s) you use to install the FB1603B/C is not supplied from us, please make sure the specification of the cable(s) is compatible with the FB1603B/C system board.

**Note:** after you install the FB1603B/C, it is recommended that you keep the diskette or CD that contains drivers and document files, document copies, and unused cables in the cartoon for future use.

The following lists the accessories that may be included in your FB1603B/C package. Some accessories are optional items that are only shipped upon order.

- One FB1603B/C PC/104 LAN board
- 6-Pin or 10-pin LAN adapter cable with transfer board. (FB4605.FB4605A, Optional)
- One compact disc containing manual file in PDF format and necessary drivers and utilities

# Chapter 2 Hardware Installation

This chapter introduces the FB1603B/C board connectors and then guides you to apply them for field application.

## Before Installation

Before you install the PC/104 LAN board, make sure you follow the following descriptions.

1. Before removing the board from its anti-static bag, wear an anti-static strap to prevent the generation of Electricity Static Discharge (ESD). The ESD may be created from human body that touches the board. It may do damage to the board circuit.

2. Once you have installed the LAN board into the CPU's PC/104 bus, you can start connect internal cables. The internal cables are wire leads with plastic female connector that attached to the board's connectors. The LAN board's connectors have many numbers of pins and are the points of contact between the CPU card and other parts of the computer.

3. When you connect the LAN connectors, be careful with the pin orientations.

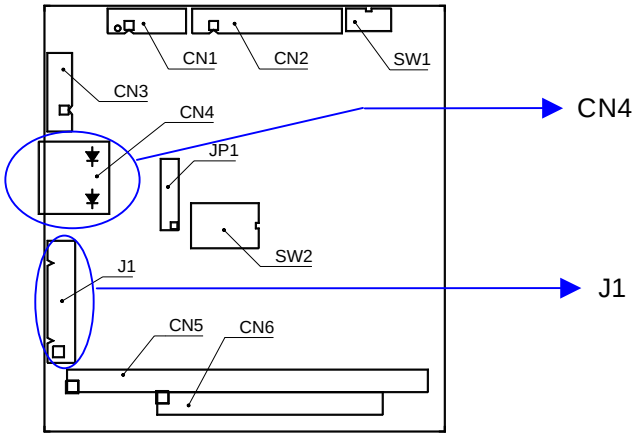
## Hardware Features

The following lists the connectors and jumpers to install the FB1603B/C.

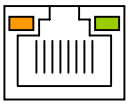
| Item | Description |
|---|---|
| CN4 | LAN Connector and LED Indicators |
| CN5 | 64 pin PC/104 connector bus A & B |
| CN6 | 40 pin PC/104 connector bus C & D |
| J1 | LAN 6/10-pin external header for LAN FB4605 (A) board |
| SW1 | Firmware Mapping Address Select (FB1603C) |
| SW2 | Base I/O Address & Firmware Mapping Address Select (FB1603B) |

### □ CN4 & J1: RJ45 LAN /Adapter Connector with LED indicators

CN4 is a RJ45 connector with 2 LEDs for LAN. The left side LED (green) indicates data is being accessed and the right side LED (orange) indicates on-line status. (On indicates on-line and off indicates off-line) J1 provide twist-pair signals of external LAN port, if you use external additional adapter board (FB4605 (A)) with cable. The following table lists the pin assignments of CN4 and RJ45 connector on the FB4605 (A) LAN adapter board:

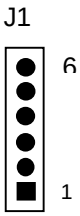



CN4 and RJ45 connector on FB4605A adapter board

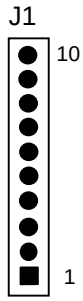


1 8

(Front View)




FB1603C External Header

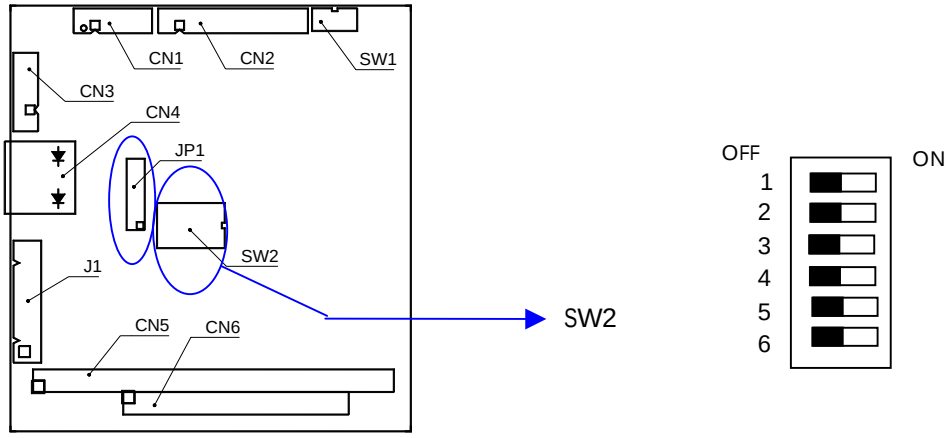



FB1603B External Header

The following lists the pin assignment of CN4.

| CN4 | Signal | CN4 | Signal |
|---|---|---|---|
| 1 | TPTX+ | 5 | FBG1 |
| 2 | TPTX - | 6 | TPRX - |
| 3 | TPRX+ | 7 | FBG2 |
| 4 | FBG1 | 8 | FBG2 |

## □ FB1603B SW2 & JP1: Selecting address & IRQ

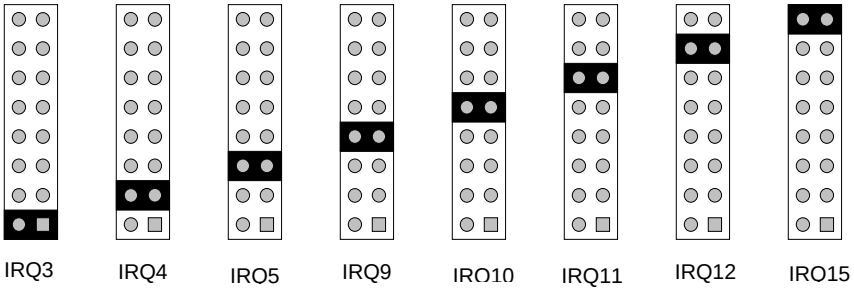



The following lists the switch settings of LAN address.

| SW2-1 | SW2-2 | SW2-3 | Mapping I/O Address | Remark |
|---|---|---|---|---|
| Off | Off | Off | 300H | Default |
| Others is reserved | | | | |

SW2-5 and SW2-6 are use to select mapping address of on-board boot-ROM socket.

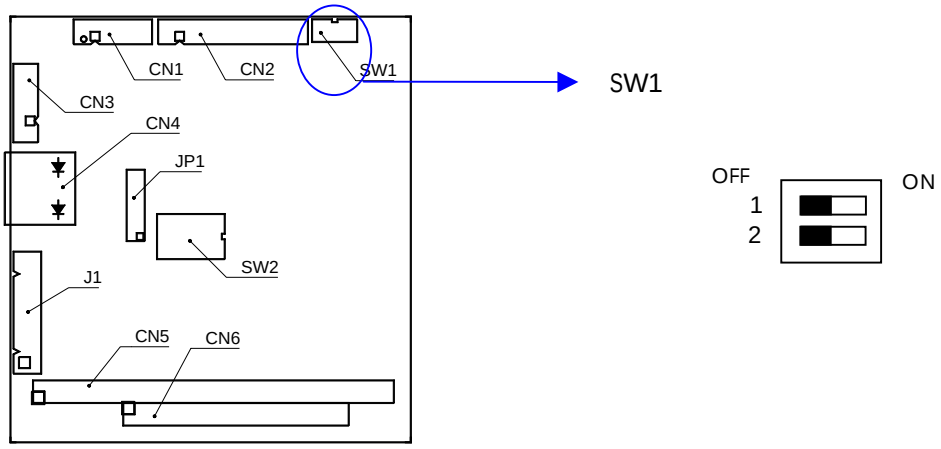
| SW2-5 | SW2-6 | Mapping Address | Remark |
|---|---|---|---|
| Off | Off | None (Disable) | Default |
| On | Off | C800H:0 (8Kbytes) | |
| Off | On | C800H:0 (8Kbytes | |
| On | On | C800H:0 (8Kbytes | |




**Factory Preset**

Note: When assign IRQ# selected the system BOIS CMOS SET UP "PLUG AND PLAY" resource IRQ# must set to ISA

## □ FB1603C SW1: Selecting boot ROM Memory address

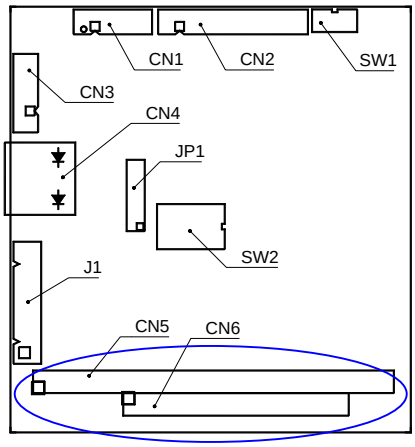



SW1 is use to select mapping address of on-board boot-ROM socket.

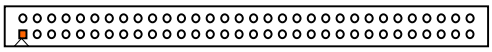
| SW1-1 | SW1-2 | Mapping Address | Remark |
|---|---|---|---|
| Off | Off | None (Disable) | Default |
| On | Off | C800H:0 (8Kbytes) | |
| Off | On | C800H:0 (8Kbytes | |
| On | On | C800H:0 (8Kbytes | |

### □ CN5, CN6: PC/104 Connector

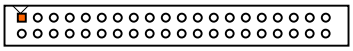
Locate the PC/104 bus connector on the FB1603B/C LAN module and its counterpart on the CPU card or board.




CN5 – BUS A & B



CN6 – BUS C & D



**PC/104 A&B Pin**

| Pin | Signal | Pin | Signal | Pin | Signal | Pin | Signal |
|---|---|---|---|---|---|---|---|
| A1 | -IOCHK | A17 | SA14 | B1 | Ground | B17 | -DACK1 |
| A2 | SD7 | A18 | SA13 | B2 | RSTDRV | B18 | DRQ1 |
| A3 | SD6 | A19 | SA12 | B3 | +5V | B19 | -REFSH |
| A4 | SD5 | A20 | SA11 | B4 | IRQ9 | B20 | BUSCLK |
| A5 | SD4 | A21 | SA10 | B5 | -5V (*1) | B21 | IRQ7 |
| A6 | SD3 | A22 | SA9 | B6 | DRQ2 | B22 | IRQ6 |
| A7 | SD2 | A23 | SA8 | B7 | -12V (*1) | B23 | IRQ5 |
| A8 | SD1 | A24 | SA7 | B8 | -ZWS | B24 | IRQ4 |
| A9 | SD0 | A25 | SA6 | B9 | +12V | B25 | IRQ3 |
| A10 | IORDY | A26 | SA5 | B10 | Key1 | B26 | -DACK2 |
| A11 | AEN | A27 | SA4 | B11 | -MEMW | B27 | TC |
| A12 | SA19 | A28 | SA3 | B12 | -MEMR | B28 | ALE |
| A13 | SA18 | A29 | SA2 | B13 | -IOW | B29 | +5V |
| A14 | SA17 | A30 | SA1 | B14 | -IOR | B30 | OSC |
| A15 | SA16 | A31 | SA0 | B15 | -DACK3 | B31 | Ground |
| A16 | SA15 | A32 | Ground | B16 | DRQ3 | B32 | Ground |

**PC/104 C& D Pin**

| Pin | Signal | Pin | Signal | Pin | Signal | Pin | Signal |
|---|---|---|---|---|---|---|---|
| C1 | GND | C11 | MEMW# | D1 | Ground | D11 | -DACK#5 |
| C2 | SBHE | C12 | SD8 | D2 | MEMCS16# | D12 | DREQ5 |
| C3 | LA23 | C13 | SD9 | D3 | IOCS16# | D13 | DACK#6 |
| C4 | LA22 | C24 | SD10 | D4 | IRQ10 | D14 | DREQ6 |
| C5 | LA21 | C25 | SD11 | D5 | IRQ11 | D15 | DACK#7 |
| C6 | LA20 | C26 | SD12 | D6 | IRQ12 | D16 | DREQ7 |
| C7 | LA19 | C27 | SD13 | D7 | IRQ15 | D17 | VCC |
| C8 | LA18 | C28 | SD14 | D8 | IRQ14 | D18 | MASTER# |
| C9 | LA17 | C29 | SD15 | D9 | DACK#0 | D19 | GND |
| C10 | MEMR# | C20 | KEY | D10 | DREQ0 | D20 | GND |

# Chapter 3 Driver and Utility

The FB1603B/C provides a CD ROM includes the manual files (a complete manual file) and the required utility files.

## FB1603C LAN Driver & Utility

**Step 1:** To install the LAN utility, insert the CD ROM into the CD ROM device, and enter DRIVER>LAN>DM9008. If your system is not equipped with a CD ROM device, copy the LAN driver from the CD ROM to a 1.44" diskette.

**Step 2** Execute install.exe file.

**Note**: In the DM9008 directory, an A.EXE file is included to provide installation information and driver.

## FB1603B LAN Driver Installation Under WIN98

The following section describes the procedure installation WINDOWS 98 drivers for FB1603B.

1. Under Windows 98, Click Control Panel, then Add New Hardware.

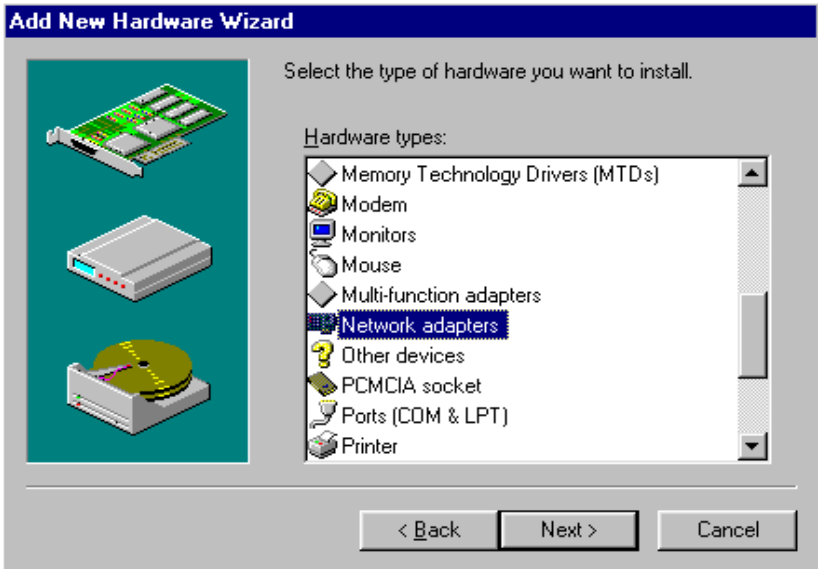
2. Windows will start to search for new drivers for the Ethernet controllers, In the Add New Hard Wizard, click Next button.

Add New Hardware Wizard
Windows can now search for hardware that is not Plug and Play compatible, or you can select your hardware from a list.
When Windows detects new hardware, it automatically determines the current settings for the device and installs the correct driver. For this reason it is strongly recommended that you have Windows search for your new hardware.
Do you want Windows to search for your new hardware?
Yes (Recommended)
No, I want to select the hardware from a list.
< Back
Next >
Cancel

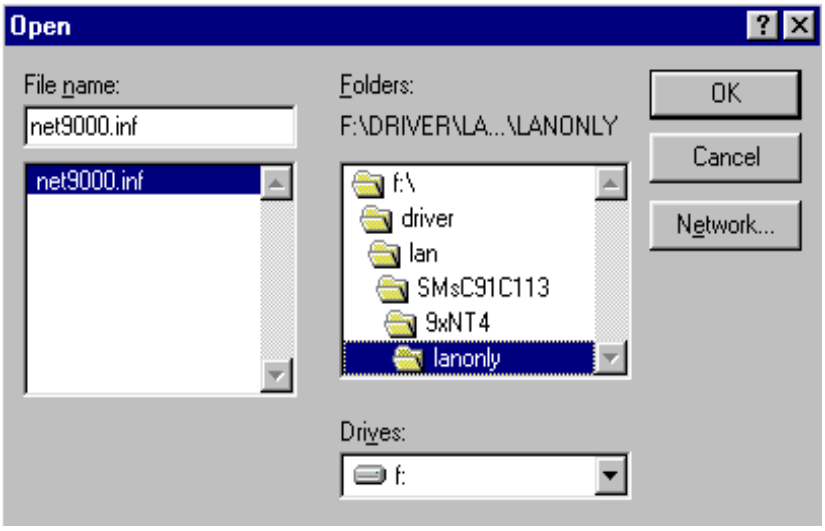
3. Now, Select No, I want to select the hardware form list, and click Next button.

Add New Hardware Wizard
Windows can now search for hardware that is not Plug and Play compatible, or you can select your hardware from a list.
When Windows detects new hardware, it automatically determines the current settings for the device and installs the correct driver. For this reason it is strongly recommended that you have Windows search for your new hardware.
Do you want Windows to search for your new hardware?
Yes (Recommended)
No, I want to select the hardware from a list.
< Back
Next >
Cancel

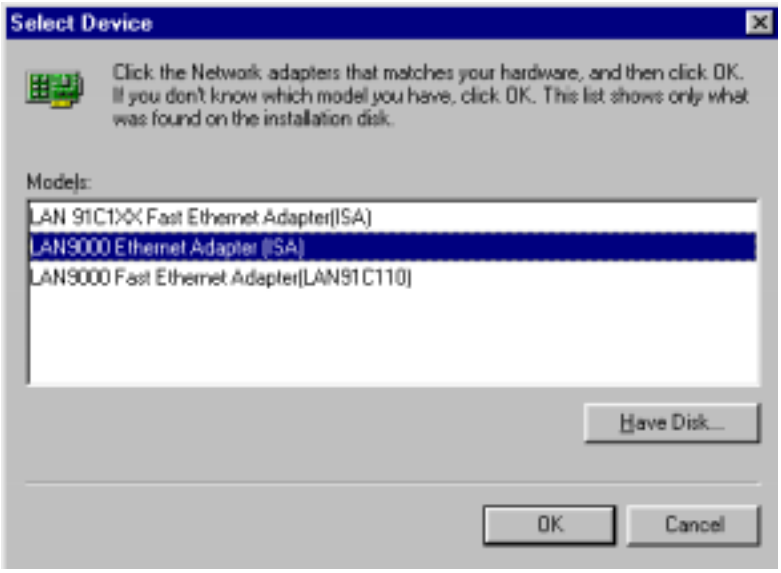
4. Select Network adapters and click Next button.




5. Select specify the path of the drivers and then click next button.



6. Select LAN9000 Ethernet Adapter (ISA) device then click OK.

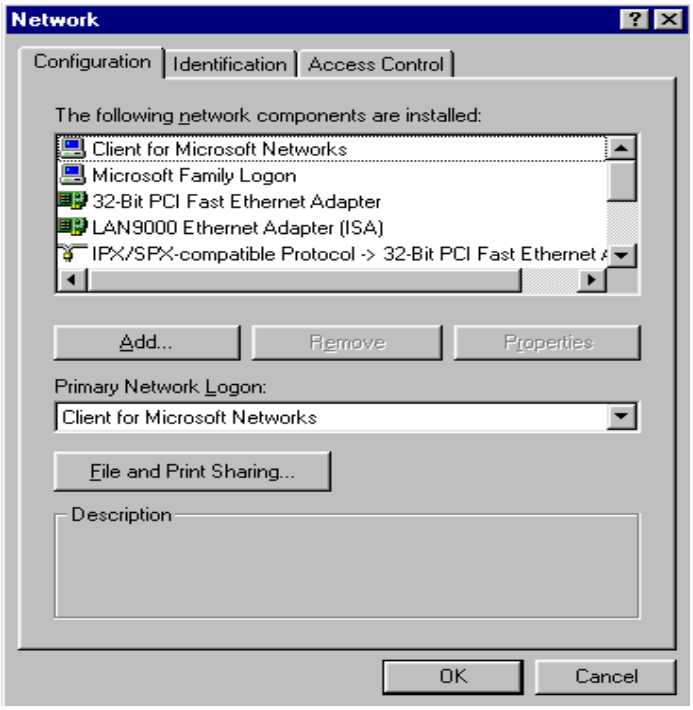

Select Device
Click the Network adapters that matches your hardware, and then click OK. If you don't know which model you have, click OK. This list shows only what was found on the installation disk.
Models:
LAN 91C1XX Fast Ethernet Adapter(ISA)
LAN9000 Ethernet Adapter (ISA)
LAN9000 Fast Ethernet Adapter(LAN91C110)
Have Disk...
OK
Cancel

7. After files copying is done, click Finish and restart the computer when prompted.

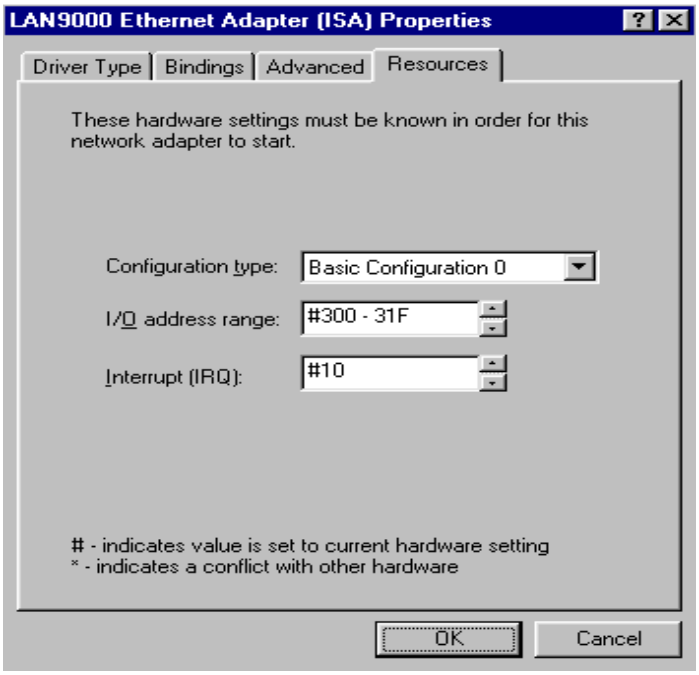
Add New Hardware Wizard
Windows has finished installing the software necessary to support your new hardware.
System Settings Change
To finish installing your hardware, you must shut down your computer, turn it off, and install the card for your hardware.
Do you want to shut down your computer now?
Yes
No
< Back
Finish
Cancel

### □ FB1603B LAN Driver Setup

1. Under Windows 98, Click Control Panel, then click Network, then click select LAN9000 Ethernet Adapter (ISA).




2. Select Resources then can configuration Interrupt (IRQ) and click OK.



# Chapter 4 Technical Reference

This section outlines the errors that may occur when you operate the system, and also gives you the suggestions on solving the problems.

Topic include:

- Trouble Shooting

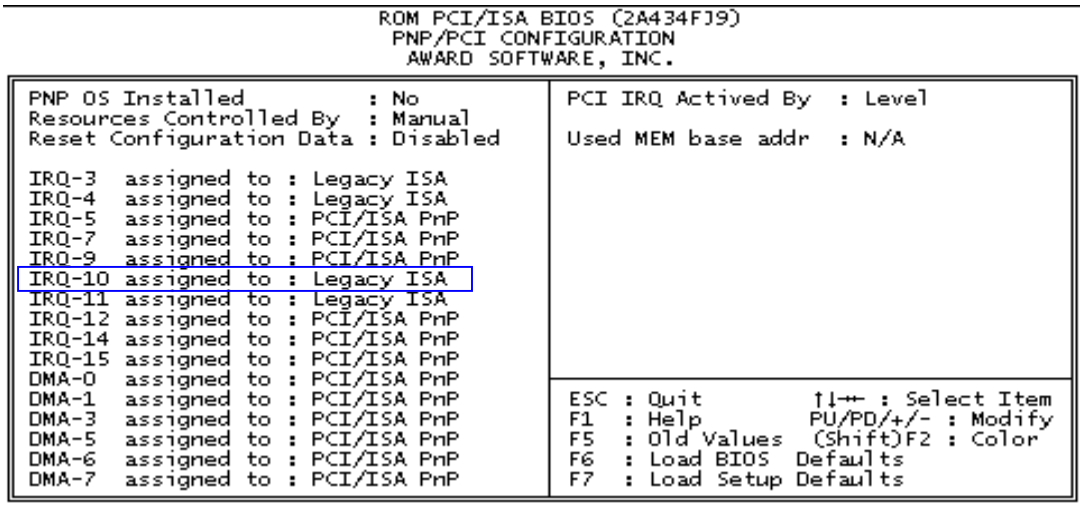
## Trouble Shooting

The following information informs the error beep code and troubleshooting. Please adjust your systems according to the messages below. Make sure all the components and connectors are in proper position and firmly attached. If the errors still exist, please contact with your distributor for maintenance.

If you have problems after installation, check the following to determine the cause.

- Ensure that all cable are properly connected, all plugs are firmly seated in their sockets. Check to see if the LAN is firmly seated in its bus PC/104. Be sure it is not making contact with any other cards in the system.
- Check the length and rating of connecting cables.
- Check CMOS SETUP “PCI PLUG AND PLAY “ RESOURCE IRQ Ensure that must set to ISA settings. Like below:

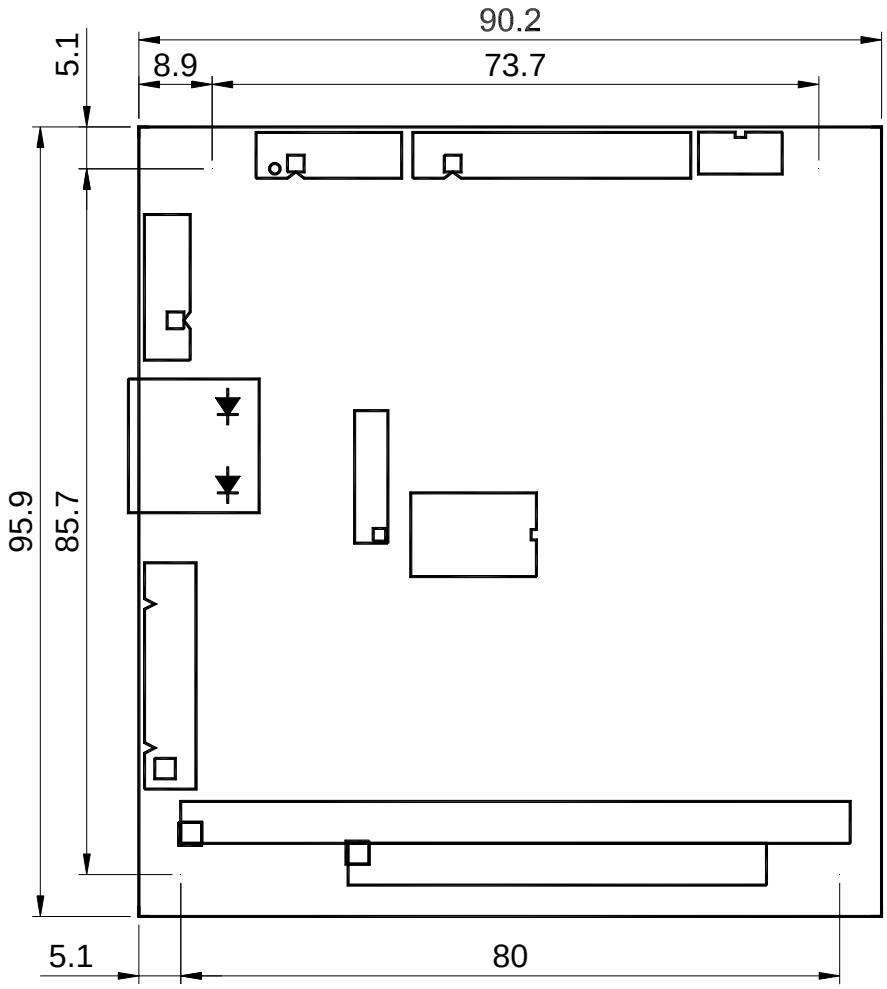
If you LAN board IRQ (JP1) selected to IRQ10 the under CMOS SEUP PCI PLUG AND PLAY “IRQ-10 assigned to: Legacy ISA”


ROM PCI/ISA BIOS (2A434FJ9)
PNP/PCI CONFIGURATION
AWARD SOFTWARE, INC.
PNP OS Installed : No
Resources Controlled By : Manual
Reset Configuration Data : Disabled
IRQ-3 assigned to : Legacy ISA
IRQ-4 assigned to : Legacy ISA
IRQ-5 assigned to : PCI/ISA PnP
IRQ-7 assigned to : PCI/ISA PnP
IRQ-9 assigned to : PCI/ISA PnP
IRQ-10 assigned to : Legacy ISA
IRQ-11 assigned to : Legacy ISA
IRQ-12 assigned to : PCI/ISA PnP
IRQ-14 assigned to : PCI/ISA PnP
IRQ-15 assigned to : PCI/ISA PnP
DMA-0 assigned to : PCI/ISA PnP
DMA-1 assigned to : PCI/ISA PnP
DMA-3 assigned to : PCI/ISA PnP
DMA-5 assigned to : PCI/ISA PnP
DMA-6 assigned to : PCI/ISA PnP
DMA-7 assigned to : PCI/ISA PnP
PCI IRQ Actived By : Level
Used MEM base addr : N/A
ESC : Quit ↑↓→← : Select Item
F1 : Help PU/PD/+/- : Modify
F5 : Old Values (Shift)F2 : Color
F6 : Load BIOS Defaults
F7 : Load Setup Defaults

If checking these items does not locate the problem, there may be a malfunction of the computer system, display monitor or the LAN. Consult you computer dealer for assistance in locating the problem

# Appendix

## Dimension




Unit: mm